Appendix C: Potential Transition and Infusion Opportunities

NASA has several programs and initiatives that help to drive the Agency's overall mission and goals. Many of the subtopics within the SBIR program touch on these missions and goals and are possible areas for SBIR funded SBCs to consider for future technology transition and infusion opportunities. Some examples of where NASA is making investments to meet these goals are:

Climate - NASA is increasing investments in climate research due to the dangers to humanity posed by climate change, including the economic and national security impacts of this threat. These investments increase our ability to better understand our own planet and how it works as an integrated system. This will require an array of instruments, platforms, and missions to deliver the highest priority data to create a 3D view of our Earth, from atmosphere to bedrock. It will also require innovation in clean energy technology, particularly technologies that enable sustainable aviation.

Moon to Mars - NASA will lead an innovative and sustainable program of exploration with commercial and international partners to send humans farther into space and bring back to Earth new knowledge and opportunities.

Commercial Lunar Payload Services (CLPS) - NASA is working with several American companies to deliver science and technology to the lunar surface through the CLPS initiative.

Flight Opportunities (Flight Opps) – This NASA program rapidly demonstrates promising technologies for space exploration, discovery, and the expansion of space commerce through suborbital testing with industry flight providers. The program matures capabilities needed for NASA missions and commercial applications while strategically investing in the growth of the U.S. commercial spaceflight industry. Offerors are encouraged to consult with the Flight Opportunities team and their resources for any technology development that benefits from microgravity testing.

International Space Station (ISS) - Conducting experiments on the International Space Station (ISS) is a unique opportunity to eliminate gravity as a variable, provide exposure to vacuum and radiation, and have a clear view of the Earth and space.

Below is a listing of all the SBIR subtopics by focus area and a designation of potential transition and infusion opportunities available to each subtopic. Offerors should think of this as a starting point; however, offerors are encouraged to consider these opportunities and their resources for advancing technology development under any of the subtopics.

NASA is not placing any priority on subtopics or awards that fall under these specific opportunities, but rather this is to assist in future planning. Offerors that submit a proposal under a subtopic that is aligned with these opportunities do not increase their chance for an award.

Subtopic #	Subtopic Title	Climate	Moon to Mars	CLPS	Flight Opps	ISS
Focus Area 1 In-Space Propulsion Technologies						
Z10.01	Cryogenic Fluid Management		Yes			
Z10.03	Space Nuclear Propulsion		Yes			

Subtopic #	Subtopic Title	Climate	Moon to Mars	CLPS	Flight Opps	ISS
Z10.04	Materials, Processes, and Technologies for Advancing In-Space Electric Propulsion Thrusters		Yes			
Focus Area 2 Power, Energy and Storage						
S13.07	Energy Storage for Extreme Environments		Yes	Yes		
S16.01	Photovoltaic Power Generation and Conversion		Yes	Yes		
S16.02	Dynamic Power Conversion		Yes	Yes		
Z1.05	Lunar and Planetary Surface Power Management and Distribution	Yes	Yes	Yes		
Focus Area 3 Autonomous Systems for Space Exploration						
H6.22	Deep Neural Net and Neuromorphic Processors for In-Space Autonomy and Cognition		Yes			Yes
H6.23	Spacecraft Autonomous Agent Cognitive Architectures for Human Exploration		Yes			Yes
S17.03	Fault Management Technologies		Yes	Yes		
Z5.08	Integrated Mission Planning and Execution for Autonomous Robotic Systems		Yes	Yes		
Focus Area 4 Robotic Systems for Space Exploration						
S13.01	Robotic Mobility, Manipulation and Sampling		Yes	Yes		
Z5.06	Servicing and Assembly Applications		Yes			
Z5.07	Autonomous Robotic Manipulation, Utilization, and Maintenance		Yes	Yes		
Focus Area 5 Communications and Navigation						
H9.01	Long-Range Optical Telecommunications		Yes		Yes	
H9.03	Flight Dynamics and Navigation Technologies		Yes	Yes	Yes	
H9.08	Lunar 3GPP Technologies		Yes	Yes	Yes	
S16.03	Guidance, Navigation, and Control					
Focus Area 6 Life Support and Habitation Systems						
H3.10	Microbial Monitoring of Spacecraft Environments: Automated Sample Preparation for Sequencing-Based Monitoring	Yes	Yes	Yes	Yes	Yes
H4.08	Anti-Fog Solutions for Spacesuit Helmet		Yes		Yes	Yes
Focus Area 7 Human Research and Health Maintenance						
H12.05	Autonomous Medical Operations		Yes	Yes	Yes	Yes
Focus Area 8 In-Situ Resource Utilization						
Z12.01	Extraction of Oxygen, Metal, and Water from Lunar Regolith		Yes	Yes		
Focus Area 9 Sensors, Detectors, and Instruments						
S11.01	Lidar Remote-Sensing Technologies	Yes	Yes			
S11.02	Technologies for Active Microwave Remote Sensing	Yes	Yes			
S11.03	Technologies for Passive Microwave Remote Sensing	Yes				
S11.04	Sensor and Detector Technologies for Visible, Infrared (IR), Far-IR, and Submillimeter	Yes				

Subtopic #	Subtopic Title	Climate	Moon to Mars	CLPS	Flight Opps	ISS
S11.05	Suborbital Instruments and Sensor Systems for Earth Science Measurements	Yes			Yes	
S12.06	Detector Technologies for Ultraviolet (UV), X-Ray, and Gamma-Ray Instruments					
S13.05	In Situ Instruments and Instrument Components for Planetary Science		Yes	Yes		
S14.02	In Situ Particles and Fields and Remote-Sensing Enabling Technologies for Heliophysics Instruments					
S15.02	In Situ Sample Preparation and Analysis for Biological and Physical Sciences in a Microgravity Environment					Yes
S16.07	Cryogenic Systems for Sensors and Detectors		Yes	Yes		
S16.08	Atomic Quantum Sensor and Clocks					
Focus Area 10 Advanced Telescope Technologies						
S12.01	Exoplanet Detection and Characterization Technologies					
S12.02	Precision Deployable Optical Structures and Metrology					
S12.03	Advanced Optical Systems and Fabrication/Testing/Control Technologies for Extended-Ultraviolet/Optical to Mid/Far-Infrared Telescopes					
S12.04	X-Ray Mirror Systems Technology, Coating Technology for X-Ray-UV-OIR, and Free-Form Optics					
Focus Area 11 Spacecraft and Platform Subsystems						
S13.03	Extreme Environments Technology		Yes	Yes		
S13.04	Contamination Control and Planetary Protection		Yes	Yes		
Z2.02	High-Performance Space Computing Technology		Yes			Yes
Focus Area 12 Entry, Descent, and Landing Systems						
Z7.01	Entry, Descent, and Landing Flight Sensors and Ground-Testing Technologies		Yes	Yes		
Z7.03	Entry and Descent System Technologies		Yes			
Z7.04	Landing Systems Technologies		Yes	Yes		
Focus Area 13 Information Technologies for Science Data						
S14.01	Space Weather Research-to-Operations-to-Research (R2O2R) Technology Development and Commercial Applications					
S17.01	Technologies for Large-Scale Numerical Simulation					
S17.02	Integrated Campaign and System Modeling	Yes	Yes			
S17.04	Application of Artificial Intelligence for Science Modeling and Instrumentation	Yes				
Focus Area 15 Materials Research, Advanced Manufacturing, Structures, and Assembly						
H5.01	Lunar Surface 50 kW-Class Solar Array Structures		Yes	Yes		

Subtopic #	Subtopic Title	Climate	Moon to Mars	CLPS	Flight Opps	ISS
H5.05	Inflatable Softgoods for Next Generation Habitation Systems	Yes		Yes	Yes	
Z4.05	Nondestructive Evaluation (NDE) Sensors, Modeling, and Analysis		Yes			
Z4.07	Advanced Materials and Manufacturing for In-Space Operations		Yes	Yes		
Z14.02	Extraterrestrial Surface Construction		Yes	Yes		
Focus Area 16 Ground & Launch Processing						
H10.01	Advanced Propulsion Systems Ground Test Technology		Yes			
H10.02	Autonomous Operations Technologies for Ground and Launch Systems		Yes	Yes	Yes	
Focus Area 17 Thermal Management Systems						
Z2.01	Spacecraft Thermal Management		Yes			
Focus Area 18 Air Vehicle Technology						
A1.02	Quiet Performance - Airframe Noise	Yes				
A1.04	Electrified Aircraft Propulsion	Yes				
A1.05	Computational Tools and Methods					
A1.06	Electric Vertical Take-Off and Landing (eVTOL) Vehicle Technologies for Weather-Tolerant Operations					
A1.08	Aeronautics Ground Test and Measurement Technologies: Sensors and Diagnostic Systems for High-Speed Flows					
A1.09	Zero-Emissions Technologies for Aircraft	Yes				
A1.10	Structural Sensors for Health Monitoring of Hypersonic Vehicles					
Focus Area 19 Integrated Flight Systems						
A2.01	Flight Test and Measurement Technologies					
A2.02	Enabling Aircraft Autonomy					
Focus Area 20 Airspace Operations and Safety						
A2.03	Advanced Air Mobility (AAM) Integration					
A3.01	Advanced Air Traffic Management for Traditional Aviation Operations	Yes				
A3.02	Advanced Air Traffic Management for Nontraditional Airspace Operations	Yes				
A3.03	Future Aviation Systems Safety					
Focus Area 21 Small Spacecraft Technologies						
Z8.02	Communications and Navigation for Distributed Small Spacecraft Beyond Low Earth Orbit (LEO)		Yes			
Z8.09	Small Spacecraft Transfer Stage Development		Yes			

Subtopic #	Subtopic Title	Climate	Moon to Mars	CLPS	Flight Opps	ISS
Z8.13	Space Debris Prevention for Small Spacecraft					
Focus Area 22 Low Earth Orbit Platform Utilization and Microgravity Research						
H8.01	Low-Earth Orbit Platform and Microgravity Utilization for Terrestrial Applications		Yes		Yes	Yes
Focus Area 24 Dust Mitigation and Extreme Lunar Environment Mitigation Technologies						
Z13.02	Components for Extreme Environments		Yes	Yes		
Z13.04	Lunar Dust Filtration and Monitoring		Yes	Yes		